CLAIMS:

1.   A multi-piece solid golf ball comprising a solid core
consisting of a center core and an outer core, an inner cover
5   layer and an outer cover layer, wherein the solid core is
molded from a rubber composition comprising
       100 parts by weight of a base rubber composed of (a)
20 to 100 wt% of a polybutadiene having a cis-1,4 content of
at least 60% and a 1,2 vinyl content of at most 2%, having a
10   viscosity η at 25°C as a 5 wt% solution in toluene of up to
600 mPa·s, being synthesized using a rare-earth catalyst, in
combination with (b) 0 to 80 wt% of a diene rubber other than
component (a),
       (c) 10 to 60 parts by weight of an unsaturated
15   carboxylic acid or a metal salt thereof or both,
       (d) 0.1 to 5 parts by weight of an organosulfur
compound,
       (e) 5 to 80 parts by weight of an inorganic filler,
and
20   (f) 0.1 to 5 parts by weight of an organic peroxide;
       the center core has a JIS-C hardness of 40 to 60 on
its center and a JIS-C hardness of 55 to 75 on its surface
and the difference therebetween is at least 10, the outer
core is harder than the surface hardness of the center core,
25   the cross-sectional hardness of 1 mm outside from the border
between the center core and the outer core is from 65 to 85
on a JIS-C hardness, the surface of the outer core has a
JIS-C hardness of 75 to 95,
       the inner cover layer has a Shore D hardness of 50 to
30   80, the outer cover layer has a Shore D hardness of 35 to 60,
and
       the outer cover layer has a lower Shore D hardness
than the inner cover layer.

2.   The golf ball of claim 1, wherein the polybutadiene
(a) satisfies relationship: $10B + 5 \leq A \leq 10B + 60$, wherein A
is the Mooney viscosity (ML_{1+4} ($100°C$)) of the polybutadiene
and B is the ratio Mw/Mn between the weight-average molecular
5   weight Mw and the number-average molecular weight Mn of the
polybutadiene.

3.   The golf ball of claim 1, wherein the diene rubber (b)
includes 30 to 100 wt% of a second polybutadiene which has a
10   cis-1,4 content of at least 60% and a 1,2 vinyl content of at
most 5%, has a Mooney viscosity (ML_{1+4} ($100°C$)) of not more
than 55, and satisfies the relationship:
        $\eta \leq 20A - 550$,
wherein A is the Mooney viscosity (ML_{1+4} ($100°C$)) of the
15   second polybutadiene and η is the viscosity of the second
polybutadiene, in mPa·s, at $25°C$ as a 5 wt% solution in
toluene.

4.   The golf ball of claim 3, wherein the second
20   polybutadiene in component (b) is synthesized using a Group
VIII catalyst.

5.   The golf ball of claim 1, wherein the center core has
a diameter of 15 to 36 mm and the outer core has a thickness
25   of 1.5 to 10 mm, and the inner cover layer has a thickness of
0.2 to 3.0 mm and the outer cover layer has a thickness of
0.2 to 2.0 mm.